

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims

1. (withdrawn) In a multi-channel video transmission system wherein channel video segments are operated on by corresponding channel video encoders (709) to encode said video segments into pluralities of frames organized into groups having defined frame patterns, an apparatus to effect a temporal staggering of corresponding ones of said frame groups among said channels comprising:

a frame counter to synchronize reset signals associated with said corresponding channel video encoders; and

means for providing a timing offset to ones of said channel video encoders corresponding to a selected frame stagger for given ones of said channels.

2. (withdrawn) The apparatus of claim 1 further comprising:
a plurality of registers, ones of said registers being loaded with frame offset values corresponding to said selected frame stagger for an associated channel.

3. (withdrawn) The apparatus of claim 2 further comprising:
a plurality of comparators, ones of said comparators being functionally associated with ones of said video encoders, said comparators being operative to receive as inputs an output of associated registers and of a frame rate counter, and to provide a timing signal as an output corresponding to said selected frame stagger for an associated channel.

4. (withdrawn) The apparatus of claim 3 further comprising:
a plurality of gates adapted to receive as inputs an encoder reset signal level and an output of ones of said comparators and to provide as an output a reset signal for an associated

encoder, wherein ones of said encoders are reset at a timing point corresponding to the selected frame stagger for given encoders.

5. (currently amended) In a video transmission system in which video segments are encoded into a plurality of frame types, a method for arranging frame transmission alignment among a plurality of channels concurrently transmitted via a common transmission medium, comprising:

identifying a specified frame type in each of said plurality of channels; and
causing ones of said specified frame type to be arranged so as to avoid temporal alignment with other ones of said specified frame type in corresponding other ones of said plurality of ~~channels~~; channels,

wherein said video segments include a fixed number of frame positions and said fixed number of frame positions is an integer multiple of a number of said plurality of channels.

6. (original) The method of claim 5 wherein said ones of said specified frame type and other ones of said specified frame type are temporally displaced, relative to one another.

7. (original) The method of claim 5 wherein said specified frame type in successive ones of said plurality of channels are displaced by one frame position relative to a location of said frame type in a preceding channel.

8. (cancelled)

9. (original) The method of claim 5 wherein each of said plurality of channels is synchronized to a common frame rate and phase.

10. (original) The method of claim 5 wherein said plurality of frame types include a high priority frame type and a low priority frame type.

11. (original) The method of claim 5 wherein said plurality of frame types include at least one intermediate priority frame type.

12. (original) The method of claim 11 wherein said video segments are encoded using an MPEG coding methodology and further wherein said high, intermediate and low priority frame types correspond respectively to MPEG Intra-coded, Predictive, and Bi-directionally Predictive frames.

13. (original) The method of claim 10 wherein ones of said low priority frame type are optionally dropped to reduce required transmission bandwidth.

14. (original) The method of claim 5 wherein said video segments are encoded using an MPEG coding methodology and correspond to an MPEG Group of Pictures.

15. (currently amended) In a video transmission system in which video segments are encoded into a plurality of frame types, an apparatus for arranging frame transmission alignment among a plurality of channels concurrently transmitted via a common transmission medium, comprising:

means for identifying a specified frame type in each of said plurality of channels; and
means for causing ones of said specified frame type to be arranged so as to avoid temporal alignment with other ones of said specified frame type in corresponding other ones of said plurality of ~~channels~~; channels.

wherein said video segments include a fixed number of frame positions and said fixed number of frame positions is an integer multiple of a number of said plurality of channels.

16. (new) The method of claim 5 wherein said fixed number of frame positions is equal to the number of said plurality of channels, such that the integer multiple is equal to one.

17. (new) The apparatus of claim 15 wherein said fixed number of frame positions is equal to the number of said plurality of channels, such that the integer multiple is equal to one.

18. (new) The method of claim 5, wherein an optimum staggering order of said specified frame type is obtained by maintaining a distance between frames of said specified frame type at a maximum on average, in consideration of the number of said plurality of channels.

19. (new) The apparatus of claim 15, wherein an optimum staggering order of said specified frame type is obtained by maintaining a distance between frames of said specified frame type at a maximum on average, in consideration of the number of said plurality of channels.

20. (new) The apparatus of claim 15, wherein said causing means comprises a frame rate counter, a plurality of phase registers, and a plurality of comparators, wherein the frame rate counter has an output connected in signal communication with a first input of each of the plurality of comparators, and each of the plurality of phrase registers has a respective output that is connected in signal communication with a second input of a respective one of the plurality of comparators.

21. (new) The apparatus of claim 15, wherein the video segments are operated on by corresponding ones of channel video encoders, and the frame rate counter synchronizes reset signals associated with the channel video encoders.

22. (new) The apparatus of claim 21, wherein ones of the plurality of registers are loaded with frame offset values corresponding to a selected frame stagger for an associated one of the plurality of channels.

23. (new) The apparatus of claim 22 wherein ones of the plurality of comparators are functionally associated with ones of the channel video encoders, the plurality of comparators being operative to provide a timing signal as an output corresponding to the selected frame stagger for the associated one of the plurality of channels.

24. (new) The apparatus of claim 23 wherein said causing means further comprises:
a plurality of gates adapted to receive as inputs an encoder reset signal level and an output of ones of the plurality of comparators and to provide as an output a reset signal for an associated one of the channel video encoders, wherein respective ones of the channel video encoders are reset at respective timing points corresponding to the selected frame stagger for a respective one of the plurality of channels.